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GEOGRAPHIC DISTRIBUTION OF *MICRONYCTERIS SCHMIDTORUM* SANBORN (CHIROPTERA: PHYLLOSTOMIDAE)

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Abstract.—Specimens of *Micronycteris schmidtorum* Sanborn from Brazil and Perú extend the distribution of the species from the previously known southernmost records in Venezuela. Preliminary data suggest geographic variation in size, with larger individuals in the north and smaller ones in the south.

Micronycteris schmidtorum Sanborn, 1935 (Fig. 1), is known from southern México to Venezuela (Villa-R. 1966, Eisenberg 1989), although no specimens have been recorded from eastern Panamá or Colombia. Throughout this range the species has been found in association with humid habitats where it forages for insects and fruit (Wilson 1973, Gardner 1977, Eisenberg 1989). It also occurs in multistratal tropical evergreen forest and dry thorn forest (Handley 1976), but is uncommon in both. Most specimens have been taken from roosts in hollow trees (Handley 1976).

In April 1977, M. R. Willig collected three specimens of *Micronycteris schmidtorum* from two localities in semiarid Caatinga habitat near Exu, Pernambuco, Brazil. These specimens were among those reported as *Micronycteris* sp. by Mares et al. (1981). In March 1978, we collected two specimens in mist nets in eastern Brazil (Fig. 2). The first was taken in humid forest at the Estacão Ecológica do Tapacurá, São Lourenço da Mata, Pernambuco, at an elevation of 170 m. The second was taken from Sitio Luanda, Itaitera, Crato, Ceará, in the vicinity of a stream in humid second-growth forest habitat below dry Cerrado habitat. These specimens represent the first records of the species from Brazil. These sites are approximately 3200 km southeast of Río Mavaca, Territorio Federal Amazonas, Venezuela, previously the southernmost recorded location for the species.

In March 1990, we netted a male in secondary tropical humid forest at the Centro de Investigación Jenaro Herrera, Requena, Loreto, Perú. This is the first Peruvian record and represents an extension of the range 1200 km from the Venezuelan locality. Requena is approximately 4000 km west of the Brazilian localities.

The Brazilian and Peruvian specimens average smaller in size in almost all dimensions when compared with specimens from more northern localities (Table 1). The two Guatemalan specimens (the holotype and a topotype) are larger than any of the other specimens we examined. Specimens from Costa Rica (Fig. 1), Panamá, and Venezuela are intermediate in size. Additional samples from the southern part of the range in Perú and Brazil might clarify the nature of this geographic variation.

The most recent list of Peruvian bats (Graham & Barkley 1984) listed 131 species. Pacheco et al. (1991) added six species; *Micronycteris schmidtorum* brings the total to 138.

The three species of small *Micronycteris* (*Micronycteris*) that are most easily misidentified are *M. megalotis, M. minuta,* and *M. schmidtorum.* Although similar in size and cranial features, and having a medial "notch" in the band of skin connecting the ears, each species can be distinguished on the basis of ventral color pattern, depth of notch in the band between ears, length of calcar, length of uropatagium relative to tail,

Fig. 1. *Micronycteris schmidtorum* from Costa Rica (Photograph by Barbara L. Clauson).

and relative size of lower premolars. *Micronycteris schmidtorum* has a grayish-white venter, a moderately notched band between ears, uropatagium more than twice length of tail, calcar longer than foot, and first lower premolar (p2) distinctly larger than second (p3). *Micronycteris megalotis* is similar to *M. schmidtorum* in length of calcar and uropatagium, but has a brownish venter, a shallow notch in the band between ears, and lower premolars that are about equal in size. *Micronycteris minuta* can be identified by

Table 1.—Means (±one standard deviation) of measurements of specimens of *Micronycteris schmidtorum* (*n* = sample size). Measurements for Guatemala specimens from Sanborn (1935:81).

Measurement	Guatemala	Costa Rica	Panama	Venezuela	Brasil	Peru
Total length	65.50 ± 2.12	61.00	60.00 ± 3.74	63.30 ± 2.07	56.50 ± 0.71	56.00
	n = 2	*n* = 1	*n* = 4	*n* = 6	*n* = 2	*n* = 1
Tail length	15.00 ± 2.82	9.00	11.50 ± 2.38	15.83 ± 1.84	12.00 ± 0	13.00
	n = 2	*n* = 1	*n* = 4	*n* = 6	*n* = 2	*n* = 1
Hind foot length	10.00 ± 0	11.00	9.25 ± 0.96	10.83 ± 0.98	9.00 ± 0	8.00
	n = 2	*n* = 1	*n* = 4	*n* = 6	*n* = 2	*n* = 1
Ear length	17.00 ± 1.41	19.00	19.13 ± 1.65	21.50 ± 1.23	20.50 ± 0.71	18.00
	n = 2	*n* = 1	*n* = 4	*n* = 6	*n* = 2	*n* = 1
Forearm length	35.30 ± 0.14	33.00	34.16 ± 0.45	35.14 ± 1.45	33.85 ± 0.35	31.60
	n = 2	*n* = 1	*n* = 5	*n* = 6	*n* = 2	*n* = 1
Tibia length	16.40 ± 0.14	15.15	15.24 ± 0.84	16.23 ± 0.46	13.70 ± 0.71	14.00
	n = 2	*n* = 1	*n* = 5	*n* = 6	*n* = 2	*n* = 1
Calcar length	12.15 ± 0.21	11.35	11.37 ± 0.26	11.00 ± 0.51	10.28 ± 0.88	11.15
	n = 2	*n* = 1	*n* = 5	*n* = 6	*n* = 2	*n* = 1
Skull length	20.55 ± 0.07	19.80	19.53 ± 0.20	19.50 ± 0.35	18.15 ± 0.90	17.70
	n = 2	*n* = 1	*n* = 5	*n* = 6	*n* = 2	*n* = 1
Condylobasal length	17.90 ± 0.14	17.50	17.31 ± 0.13	17.47 ± 0.43	16.08 ± 1.31	15.60
	n = 2	*n* = 1	*n* = 4	*n* = 6	*n* = 2	*n* = 1
Maxillary toothrow L.	7.85 ± 0.07	7.50	7.44 ± 0.11	7.56 ± 0.24	6.53 ± 1.03	6.50
	n = 2	*n* = 1	*n* = 6	*n* = 6	*n* = 2	*n* = 1
Mastoid breadth	9.05 ± 0.21	9.05	8.75 ± 0.11	8.71 ± 0.20	8.50 ± 0.35	8.15
	n = 2	*n* = 1	*n* = 5	*n* = 6	*n* = 2	*n* = 1
Interorbital breadth	4.30 ± 0	4.20	4.26 ± 0.09	4.18 ± 0.15	4.13 ± 0.18	3.95
	n = 2	*n* = 1	*n* = 6	*n* = 6	*n* = 2	*n* = 1
Zygomatic breadth	9.10 ± 0.21	9.00	9.06 ± 0.20	9.01 ± 0.28	8.80	8.50
	n = 2	*n* = 1	*n* = 5	*n* = 4	*n* = 1	*n* = 1

its white venter, deep notch in the band between ears, calcar shorter than foot, uropatagium less than twice length of tail, and first upper premolar (P3) shorter than second (P4). Upper premolars are about the same height in the other two taxa.

Specimens examined.—(USNM = National Museum of Natural History, Washington, D.C.; MUSM = Museo de Historia Natural de la Universidad Nacional Mayor de San Marcos, Lima, Perú; CM = Carnegie Museum of Natural History, Pittsburgh, PA). Belize: Toledo, Big Fall Village, 0.5 mi. E Rio Grande Bridge (♂-CM 90108). Costa Rica: Heredia, Parque Nacional Braulio Carrillo, 11 km S, 4.5 km W Puerto Viejo, 300 m (♀-USNM 562753). Panamá: Canal Zone, Barro Colorado Island (♀-USNM 534826); Canal Zone, Península Bohio (♀-USNM 536969, ♀-454887); Chiriquí, Cerro Punta (♀-USNM 314208); Los Santos, Las Palmitas (♀-USNM 323061). Venezuela: Falcón Capatárida (♂-USNM 444235); Territorio Federal Amazonas, Río Mavaca, 108 km SSE Esmeralda (♀-USNM 388713); Territorio Federal Amazonas, Belén, Río Cunucunuma (♀-USNM 388704); Territorio Federal Amazonas, San Juan, Río Manapiare (♀-USNM 407257, ♂-USNM 407258, ♂-USNM 407259). Brazil: Pernambuco, Tapacurá, São Lourenço da Mata (♂-USNM 555703); Pernambuco, Fazenda Alto do Ferreira, 5 km SW Exu (2♂-CM 98908, 98909); Pernambuco, Fazenda Cantareno, 4.5 km NNE Exu (♂-CM 98910); Ceará, Sitio Luanda, Itaitera, Crato

Fig. 2. Geographic distribution of *Micronycteris schmidtorum*.

(♀-USNM 555702). Perú: Loreto, Requena, Jenaro Herrera (♂-MUSM 5528).

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